

Ch. 3 Review

1) a) $y = -3x + 4$
 $y = 7x - 26$

$$\begin{array}{r} -3x + 4 = 7x - 26 \\ +3x \quad +3x \\ \hline 4 = 10x - 26 \\ +26 \quad +26 \\ \hline 30 = 10x \end{array}$$

$$30 = 10x$$

$$\boxed{x = 3}$$

$$\begin{array}{l} y = -3(3) + 4 \\ y = -9 + 4 \\ \boxed{y = -5} \end{array}$$

b) $y = 6x + 2$
 $3x - 4y = -29$

$$\begin{array}{l} \Rightarrow 3x - 4(6x + 2) = -29 \\ 3x - 24x - 8 = -29 \\ -21x - 8 = -29 \\ +8 \quad +8 \\ \hline -21x = -21 \end{array}$$

$$-21x = -21$$

$$\boxed{x = 1}$$

$$\begin{array}{l} y = 6x + 2 \\ y = 6(1) + 2 \\ \boxed{y = 8} \end{array}$$

c) $x + 7y = 12 \quad (-3)$
 $3x - 5y = 10$

$$\begin{array}{r} \Rightarrow -3x - 21y = -36 \\ 3x - 5y = 10 \\ \hline -26y = -26 \\ \boxed{y = 1} \end{array}$$

$$\begin{array}{l} x + 7(1) = 12 \\ x + 7 = 12 \\ \boxed{x = 5} \end{array}$$

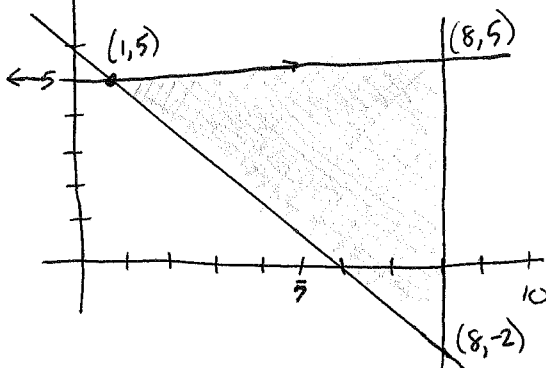
d) $3x - 2y = 5 \quad (\times 2)$
 $-6x + 4y = -10$

$$\begin{array}{r} \Rightarrow 6x - 4y = 10 \\ -6x + 4y = -10 \\ \hline 0 = 0 \end{array}$$

All \mathbb{R} numbers
 Dependent
 same line

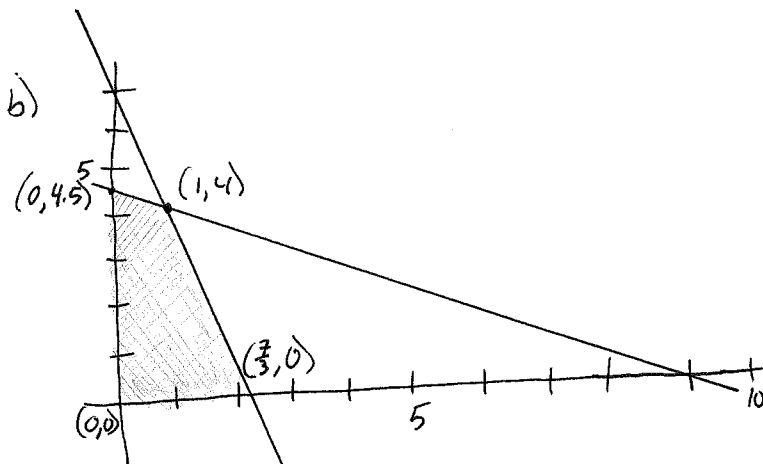
2)

a)



minimized at $(8, -2) = 2$

b)



maximized at $(1, 4) = 6$

Ch. 3 Review

canned = x dry = y

Switched
3+4

$$30 \leq 2x + 6y$$

$$16 \leq 4x + 2y$$

$$12 \geq x + y$$

$$x - \text{int} = 15 \quad y - \text{int} = 5$$

$$x - \text{int} = 4 \quad y - \text{int} = 8$$

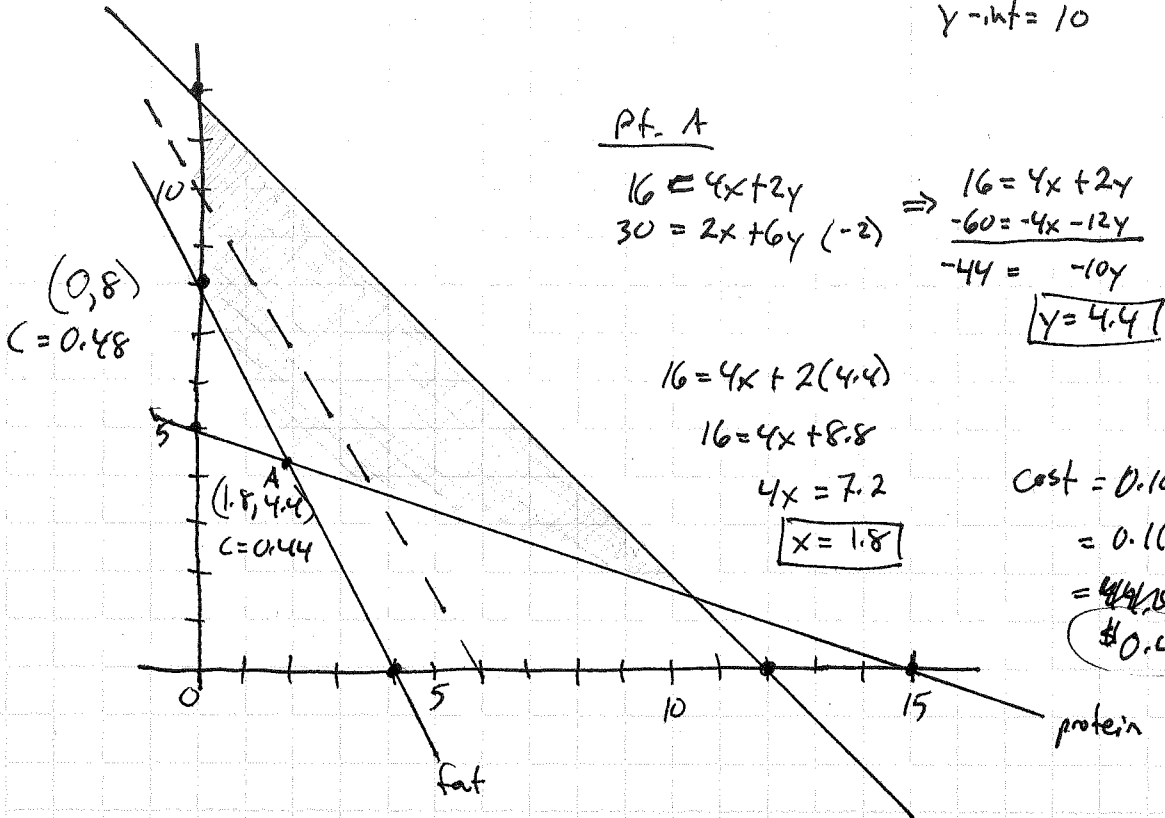
$$x - \text{int} = 12 \quad y - \text{int} = 12$$

$$\text{cost} = 0.10x + 0.06y$$

$$0.60 = 0.10x + 0.06y$$

$$x - \text{int} = 6$$

$$y - \text{int} = 10$$



Pt. A

$$16 = 4x + 2y$$

$$30 = 2x + 6y \quad (-2)$$

$$\Rightarrow 16 = 4x + 2y$$

$$-60 = -4x - 12y$$

$$-44 = -10y$$

$$y = 4.4$$

$$16 = 4x + 2(4.4)$$

$$16 = 4x + 8.8$$

$$4x = 7.2$$

$$x = 1.8$$

$$\text{Cost} = 0.10x + 0.06y$$

$$= 0.1(1.8) + 0.06(4.4)$$

$$= 0.44$$

$$= \$0.44$$

③

$$8x + 2y \geq 24 \quad \text{low}$$

$$x + y \geq 6 \quad \text{medium}$$

$$2x + 8y \geq 30 \quad \text{high}$$

$$x - \text{int} = 3 \quad y - \text{int} = 12$$

$$x - \text{int} = 6 \quad y - \text{int} = 6$$

$$x - \text{int} = 15 \quad y - \text{int} = 3.75$$

Pt. A

$$8x + 2y = 24$$

$$x + y = 6 \quad (-2)$$

$$8x + 2y = 24$$

$$-2x - 2y = -12$$

$$6x = 12$$

$$x = 2$$

$$y = 4$$

Pt. B

$$2x + 8y = 30$$

$$x + y = 6 \quad (-2)$$

$$2x + 8y = 30$$

$$-2x - 2y = -12$$

$$6y = 18$$

$$y = 3$$

$$x = 3$$

$$\text{Cost A} = 2000(2) + 4000(4)$$

$$= 20K$$

$$\text{Cost B} = 2000(3) + 4000(3)$$

$$= 18K$$

3 days each
factory
\$18K

